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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,375	06/30/2006	Shinichiro Yamada	20692/0203861-US0	8420

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DARBY & DARBY P.C.
P.O. BOX 770
Church Street Station
New York, NY 10008-0770

EXAMINER	
GILLESPIE, BENJAMIN	
ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,375	YAMADA ET AL.	
	Examiner	Art Unit	
	BENJAMIN J. GILLESPIE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,6,10,12,14,16 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,10,12,14,16 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The new ground of rejection with respect to claims 1-3, 5-6, 10, 12, 14, and 16 presented below has been necessitated by applicants' amendment filed 6/10/2009 – specifically that the metal hydroxide of claim 1 is now limited to aluminum hydroxide and component (E) of claim 3 is now limited to an amount of 0.1% to 3%. Claim 18 has not been amended. Thus it is proper to make the instant action FINAL.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1-3, 5-6, 10, 12, 14, 16, and 18** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 11/575,823 in view of Kondo *et alli* (US 5,593,778), Shimatzu Corp. (JP 2002-105298 A), Wnuk *et alli* (US 5,939,467), Ida *et alli* (US 6,337,031), and Allcock (Allcock, Harry R.; Lampe, Frederick W.; Mark, James E. CONTEMPORARY POLYMER CHEMISTRY, 3rd ed. New Jersey, Pearson Education, 2003. pp. 545-548.).

4. This rejection has been previously set forth in paragraphs 16-24 of the non-final rejection mailed 12/23/2008, and is herein incorporated by reference.

5. This is a provisional obviousness-type double patenting rejection.

6. **Claims -3, 5-6, 10, 12, 14, 16, and 18** are directed to an invention not patentably distinct from claims 1-8 of commonly assigned 11/575,823. See above.

7. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned 11/575823, discussed above, independently would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

8. A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) and 103(a) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. **Claim 18** is rejected under 35 U.S.C. 102(b) as being anticipated by or in the alternative, under 35 U.S.C. 103(a) as obvious over Shimatzu Corp. (JP 2002-105298 A).

11. **Regarding claim 18:** The rejection of claim 18 has been previously set forth in paragraphs 30-34 of the non-final rejection mailed 12/23/2008 and is herein incorporated by reference.

Obviousness Rejection I

12. **Claims 1 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimatzu Corp. (JP 2002-105298 A).

13. **Regarding claim 1:** Shimatzu teaches a lactic acid resin system having an impact resistant greater than 5 kJ/m^2, wherein said resin may comprises bulking agents that are treated with a silane coupling agent. Said bulking agent is an amount of 1%-30% by weight of the total system (Paragraphs 1, 12 and 13).

14. Additionally, as noted by the applicant, metal hydroxides are flame retardants and polylactic acid based resins have improved heat resistance (Amendment dated 8/29/2008, p. 9, ll. 3-6; instant specification, p. 2, ll.18-19; p. 3, ll. 15-24). Therefore, the "flame retardant" limitation is satisfied by the prior art since Shimatzu discloses a lactic acid resin system with a metal hydroxide.

15. While the bulking agents comprises metal hydroxides – specifically aluminum hydroxide – patentees fail to teach aluminum hydroxide with sufficient specificity to anticipate the claim. Nevertheless, it still would have been obvious to arrive at the claimed limitation since aluminum hydroxide is listed as a suitable bulking agent that can be used in combination with the silane coupling agents, and applicants have not established and criticality regarding the selection of aluminum hydroxide over other bulking agents disclosed by Shimatzu et al.

16. **Regarding claim 6:** Similarly, Shimatzu teaches a lactic acid resin system further comprising a bulking agent that has been treated with a silane coupling agent. While the bulking agent comprises aluminum hydroxide particles and the silane coupling agent can be beta-(3,4 epoxycyclohexyl) ethyltrimethoxysilane, the prior art fails to give a anticipatory statement showing the selection of these two specific compounds together. Nevertheless, it would have been obvious to arrive at the claimed silane coupling agent and aluminum hydroxide particle since they are both disclosed by Shimatzu as being useful in the relied upon composition.

Obviousness Rejection II

17. **Claims 2 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimatzu Corp. (JP 2002-105298 A) in view of Allcock (Allcock, Harry R.; Lampe, Frederick W.; Mark, James E. CONTEMPORARY POLYMER CHEMISTRY, 3rd ed. New Jersey, Pearson Education, 2003. pp. 545-548.).

18. **Regarding claims 2 and 12:** As discussed in paragraphs 13-15 Shimatzu teaches a composition comprising polyester prepared by a diol/dicarboxylic acid polymerization and independently the base polylactic acid resin (Paragraphs 8 and 9). Shimatzu fails, however, to disclose the addition of a copolymer of a polyester and lactic acid, present in a range of 10 to 40 wt. %.

19. Allcock teaches that copolymers break up crystallinity compared to mixtures of their homopolymer counterparts, making said copolymers more elastomeric and rubbery (p. 546, ll. 5-7). Ultimately, one of ordinary skill in the art would expect a more rubbery compound to be characterized by a higher impact resistance and being less brittle. As such, it would have been obvious at the time of invention to copolymerize Shimatzu's "main component" (i.e. poly lactic acid) into Shimatzu's additive "(c)" in an amount appropriate to the desired impact resistively, thereby forming the applicant's limitation (c) so that one will have a more impact resistive and less brittle resultant polymer.

Obviousness Rejection III

20. **Claims 3 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimatzu Corp. (JP 2002-105298 A) in view of Allcock (Allcock, Harry R.; Lampe, Frederick W.; Mark, James E. CONTEMPORARY POLYMER CHEMISTRY, 3rd ed. New Jersey, Pearson Education, 2003. pp. 545-548.) as applied to claims 2 and 12 above, further in view of Wnuk *et alli* (US 5,939,467).

21. **Regarding claims 3 and 16:** As discussed in paragraphs 13-15 Shimatzu teaches a composition that further comprises dimethyl phthalate plasticizer *preferably* in an amount ranging from in 5 to 25 wt. % (Paragraphs 15 and 18). However, there is not teaching that said plasticizer is present in amounts of 3 wt%.

22. Nevertheless, this range is merely a preferred range and Shimatzu gives one motivation to raise (e.g., more plasticizing effect) and lower (e.g., high amounts of plasticizer lead to an unstable product)

the amount of plasticizer. As such, the amount of plasticizer is a result effective variable. Optimization of result effective variables through routine experimentation is not a patentable distinction. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP 2144.05 (II) (B). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the amount of plasticizer in the formulation. Still, Shimatzu still fails to teach using an aromatic-aliphatic polyester component.

23. Wnuk takes that aromatic-aliphatic polyesters have good biodegradability, which could enhance Shimatzu to create a more biodegradable resin. As such, one of ordinary skill in the art has motivation to add aromatic-aliphatic polyesters to Shimatzu's composition in an amount relative to the biodegradability desired to create a more biodegradable product. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add aromatic-aliphatic polyesters to Shimatzu's composition to create a more biodegradable composition.

Obviousness Rejection IV

24. **Claims 5 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimatzu Corp. (JP 2002-105298 A) in view of Ida *et alli* (US 6,337,031).

25. **Regarding claims 5 and 8:** Aforementioned in paragraphs 13-15 Shimatzu teaches a lactic acid resin system further comprising aluminum hydroxide particles, however, Shimatzu fails to disclose the particle size range of claim 5.

26. Ida uses aluminum hydroxide particles as heat resistant particles, wherein the particles should be between 1 and 4 microns. It is noted that Shimatzu intends the aluminum hydroxide as a bulking agent. However, particle size is not critical for Shimatzu's invention as Shimatzu did not necessitate a

specific particle size. By using Ida's particle size, one would expect that Shimatzu would become more heat-resistive.

27. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an average particle size of 1-4 microns micron for the aluminum hydroxide particle in Shimatzu's invention, giving more heat-resistance.

Obviousness Rejection V

28. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimatzu Corp. (JP 2002-105298 A) in view of Allcock (Allcock, Harry R.; Lampe, Frederick W.; Mark, James E. CONTEMPORARY POLYMER CHEMISTRY, 3rd ed. New Jersey, Pearson Education, 2003. pp. 545-548.) as applied to claims 2, 9, and 12 above, in view of Ida *et alli* (US 6,337,031).

29. **Regarding claim 10:** Aforementioned in paragraphs 13-15 the prior art renders obvious a lactic acid resin system further comprising aluminum hydroxide particles, however, Shimatzu fails to disclose the particle size range of claim 10.

30. Ida uses aluminum hydroxide particles as heat resistant particles, wherein the particles should be between 1 and 4 microns. It is noted that Shimatzu in view of Allcock intends the aluminum hydroxide as a bulking agent. However, particle size is not critical for Shimatzu in view of Allcock 's invention as Shimatzu did not necessitate a specific particle size. By using Ida's particle size, one would expect that Shimatzu in view of Allcock would become more heat-resistive.

31. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an average particle size of 1-4 microns micron for the aluminum hydroxide particle in Shimatzu in view of Allcock's invention, imparting more heat-resistance.

Obviousness Rejection VI

32. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimatzu Corp. (JP 2002-105298 A) in view of Wnuk *et alli* (US 5,939,467) as applied to claims 3, 7, 13, and 16 above, further in view of Ida *et alli* (US 6,337,031).

33. **Regarding claim 14:** Aforementioned in paragraphs 13-15 the prior art renders obvious a lactic acid resin system further comprising aluminum hydroxide particles, however, Shimatzu fails to disclose the particle size range of claim 14.

34. Ida uses aluminum hydroxide particles as heat resistant particles, wherein the particles should be between 1 and 4 microns. It is noted that Shimatzu in view of Wnuk intends the aluminum hydroxide as a bulking agent. However, particle size is not critical for Shimatzu in view of Wnuk's invention as Shimatzu in view of Wnuk does not necessitate a specific particle size. By using Ida's particle size, one would expect that Shimatzu in view of Wnuk would become more heat-resistive.

35. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use an average particle size of 1-4 microns micron for the aluminum hydroxide particle in Shimatzu in view of Wnuk's invention, giving more heat-resistance.

Terminal Disclaimer

36. The application/patent being disclaimed has been improperly identified since the number used to identify the co-pending application being disclaimed is incorrect. The correct application number is 11/575,823.

Response to Arguments

37. Applicant's arguments filed 6/10/2009 have been fully considered, but are not persuasive. Specifically, applicants argue that:

a. Shimatzu teach the relied upon aluminum hydroxide is "tabular" and therefore would not satisfy the "particle" limitation of claim 1.

b. Shimatzu fail to teach plasticizer in an amount of at most 3 wt% and instead teach a lower limit of 5 wt% and the current prima facie case of obviousness fails to render the claimed range obvious.

38. Regarding issue **a.** and contrary to applicants' assertions, the term "particle" fails to exclude geometries other than spherical. This is supported by:

a. Column 3 lines 58-59 of U.S. Patent 3,013,902 which states that a particle can be "spherical, fibrous, [and] plate-like".

b. Claim 1 of U.S. Patent 4,476,236 – which teaches "plate-shaped particles" and finally,

c. Column 2 line 35 of U.S. Patent 5,149,520 – which also teaches "plate-like particles".

2. Regarding issue **b.** applicants argue that the claimed invention has not been rendered obvious by the prior art because Shimatzu only teach that a preferred amount of plasticizer – 5 wt%. As discussed in paragraph 21 through 23 – while the preferred embodiments have been noted, these are only **preferred embodiments.** A reference does not disqualify because a preferred embodiment fails to overlap with a claimed limitation.

3. Furthermore, it should be noted that even if applicants were to maintain their argument of dependent claim 3, independent claim 1 would still be satisfied by prior art - the application is still **NOT** in condition for allowance.

Conclusion

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

40. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN J. GILLESPIE whose telephone number is (571)272-2472. The examiner can normally be reached on 8am-5:30pm.

42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Benjamin J Gillespie/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796